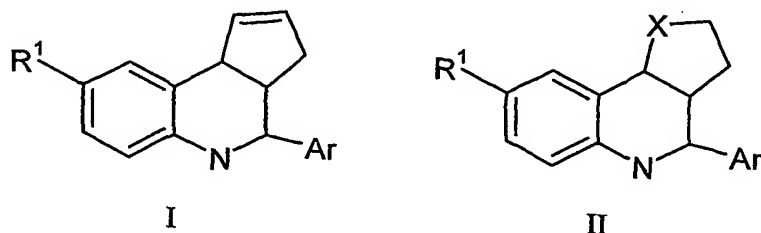


WE CLAIM:

1. A method of treatment or prophylaxis of psychotic disorders, intellectual impairment disorders or diseases or conditions in which modulation of the $\alpha 7$ nicotinic receptor is beneficial, which method comprises administering a therapeutically-effective amount of a compound of Formula I or formula II:



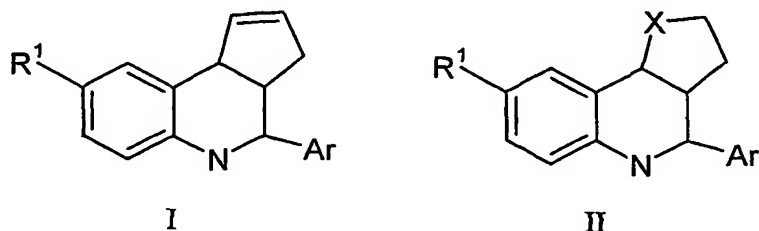
wherein:

- 10 R^1 is $-OH$, $-N(R^2)_2$, $-NR^2-SO_2-R^2$, $-SO_2-N(R^2)_2$, $-CON(R^2)_2$, or $-NR^2COR^2$ where R^2 at each occurrence is independently selected from hydrogen, C_{1-4} alkyl, halogenated C_{1-4} alkyl, aryl or heteroaryl where any alkyl, halogenated-alkyl, aryl or heteroaryl moiety is substituted with 0, 1, 2 or 3 R^3 moieties;
- X is O, S or CH_2 ;
- 15 Ar is a moiety selected from furyl, pyridyl, thienyl, phenyl or naphthyl, said moiety having 0, 1, 2, 3 or more R^3 substituents where R^3 is at each occurrence independently selected from hydrogen, halogen, C_{1-4} alkyl, C_{2-4} alkenyl, C_{2-4} alkynyl, OC_{1-4} alkyl, NH_2 , CO_2H , CO_2C_{1-4} alkyl, CN , NO_2 , and CF_3 ;
- 20 or a diastereoisomer, enantiomer or pharmaceutically-acceptable salt thereof.

2. A method of treatment or prophylaxis according to Claim 1, wherein said psychotic disorder, intellectual impairment disorder or disease or condition in which modulation of the $\alpha 7$ nicotinic receptor is beneficial is selected from Alzheimer's disease, learning deficit, cognition deficit, attention deficit, memory loss, Lewy Body Dementia, Attention Deficit Hyperactivity Disorder, anxiety, schizophrenia, mania, manic depression, Parkinson's disease, Huntington's disease, Tourette's syndrome, a neurodegenerative disorder in which there is loss of cholinergic synapse, jetlag, nicotine addiction, pain, ulcerative colitis or irritable bowel syndrome.

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3. A pharmaceutical composition comprising a compound according to Formula I or Formula II



5 wherein:

R^1 is $-OH$, $-N(R^2)_2$, $-NR^2-SO_2-R^2$, $-SO_2-N(R^2)_2$, $-CON(R^2)_2$, or $-NR^2COR^2$ where R^2 at each occurrence is independently selected from hydrogen, C_{1-4} alkyl, halogenated C_{1-4} alkyl, aryl or heteroaryl where any alkyl, halogenated-alkyl, aryl or heteroaryl moiety is substituted with 0, 1, 2 or 3 R^3 moieties;

10 X is O, S or CH_2 ;

Ar is a moiety selected from furyl, pyridyl, thienyl, phenyl or naphthyl, said moiety having 0, 1, 2, 3 or more R^3 substituents where R^3 is at each occurrence independently selected from hydrogen, halogen, C_{1-4} alkyl, C_{2-4} alkenyl, C_{2-4} alkynyl, OC_{1-4} alkyl, NH_2 , CO_2H , CO_2C_{1-4} alkyl, CN, NO_2 , and CF_3 ;

15 or a diastereoisomer, enantiomer or pharmaceutically-acceptable salt thereof, together with at least one pharmaceutically-acceptable diluent or carrier.

4. The pharmaceutical composition according to Claim 3, in addition comprising a nicotinic receptor agonist.

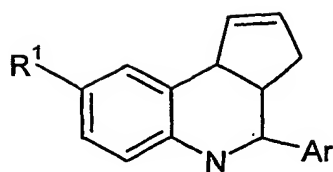
20

5. A method of treatment prophylaxis of Alzheimer's disease, learning deficit, cognition deficit, attention deficit, memory loss, Lewy Body Dementia, Attention Deficit Hyperactivity Disorder, anxiety, schizophrenia, mania, manic depression, Parkinson's disease, Huntington's disease, Tourette's syndrome, a neurodegenerative disorder in which there is loss of cholinergic synapse, jetlag, nicotine addiction, pain, ulcerative colitis or irritable bowel syndrome comprising administering a therapeutically-effective amount of a pharmaceutical composition according to Claim 3 or 4.

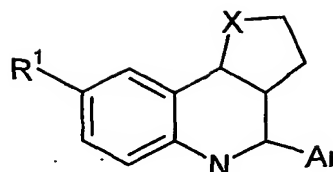
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6. Use of a compound according to Formula I or Formula II

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I



II

wherein:

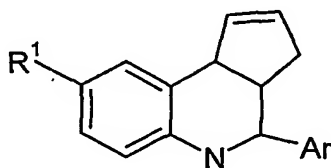
R¹ is -OH, -N(R²)₂, -NR²-SO₂-R², -SO₂-N(R²)₂, -CON(R²)₂, or -NR²COR² where R² at
 5 each occurrence is independently selected from hydrogen, C₁₋₄alkyl, halogenatedC₁₋₄alkyl,
 aryl or heteroaryl where any alkyl, halogenated-alkyl, aryl or heteroaryl moiety is substituted
 with 0, 1, 2 or 3 R³ moieties;

X is O, S or CH₂;

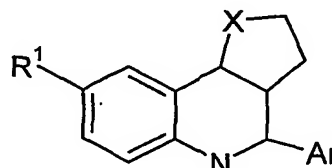
Ar is a moiety selected from furyl, pyridyl, thienyl, phenyl or naphthyl, said moiety
 10 having 0, 1, 2, 3 or more R³ substituents where R³ is at each occurrence independently
 selected from hydrogen, halogen, C₁₋₄alkyl, C₂₋₄alkenyl, C₂₋₄alkynyl, OC₁₋₄alkyl, NH₂, CO₂H,
 CO₂C₁₋₄alkyl, CN, NO₂, and CF₃;

or a diastereoisomer, enantiomer or pharmaceutically-acceptable salt thereof, in the
 manufacture of a medicament for the treatment or prophylaxis of psychotic disorders,
 15 intellectual impairment disorders, human diseases or conditions in which modulation of the α₇
 nicotinic receptor is beneficial including Alzheimer's disease, learning deficit, cognition
 deficit, attention deficit, memory loss, Lewy Body Dementia, Attention Deficit Hyperactivity
 Disorder, anxiety, schizophrenia, mania, manic depression, Parkinson's disease, Huntington's
 disease, Tourette's syndrome, a neurodegenerative disorder in which there is loss of
 20 cholinergic synapse, jetlag, nicotine addiction, pain, ulcerative colitis or irritable bowel
 syndrome.

7. A compound of Formula I or Formula II:



I



II

wherein:

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R^1 is $NR^2-SO_2-R^2$ or $-SO_2-N(R^2)_2$ where R^2 at each occurrence is independently selected from hydrogen, C_{1-4} alkyl, halogenated C_{1-4} alkyl, aryl or heteroaryl where any alkyl, halogenated-alkyl, aryl or heteroaryl moiety is substituted with 0, 1, 2 or 3 R^3 moieties;

X is O, S or CH_2 ;

5 Ar is a moiety selected from furyl, pyridyl, thienyl, phenyl or naphthyl, said moiety having 0, 1, 2, 3 or more R^3 substituents where R^3 is at each occurrence independently selected from hydrogen, halogen, C_{1-4} alkyl, C_{2-4} alkenyl, C_{2-4} alkynyl, OC_{1-4} alkyl, NH_2 , CO_2H , CO_2C_{1-4} alkyl, CN, NO_2 , and CF_3 ;

or a diastereoisomer, enantiomer or pharmaceutically-acceptable salt thereof.

10

8. A compound according to Claim 7, wherein:

R^1 is $-SO_2-N(R^2)_2$ where R^2 at each occurrence is independently selected from hydrogen, C_{1-4} alkyl, halogenated C_{1-4} alkyl, aryl or heteroaryl where any alkyl, halogenated-alkyl, aryl or heteroaryl moiety is substituted with 0, 1, 2 or 3 R^3 moieties;

15

X is O, S or CH_2 ;

Ar is a moiety selected from furyl, pyridyl, thienyl, phenyl or naphthyl, said moiety having 0, 1, 2, 3 or more R^3 substituents where R^3 is at each occurrence independently selected from hydrogen, halogen, C_{1-4} alkyl, C_{2-4} alkenyl, C_{2-4} alkynyl, OC_{1-4} alkyl, NH_2 , CO_2H , CO_2C_{1-4} alkyl, CN, NO_2 , and CF_3 ;

20

9. A compound according to claim 7, said compound being:

4-(2-methylphenyl)-3a,4,5,9b-tetrahydro-3H-cyclopenta[c]quinoline-8-sulfonamide;

4-(4-methylphenyl)-3a,4,5,9b-tetrahydro-3H-cyclopenta[c]quinoline-8-sulfonamide;

4-(3,4,5-trimethoxyphenyl)-3a,4,5,9b-tetrahydro-3H-cyclopenta[c]quinoline-8-sulfonamide;

25

4-(2-methyl-4,5-dimethoxyphenyl)-3a,4,5,9b-tetrahydro-3H-cyclopenta[c]quinoline-8-sulfonamide;

4-(3,5-dimethoxyphenyl)-3a,4,5,9b-tetrahydro-3H-cyclopenta[c]quinoline-8-sulfonamide;

4-(4-tert-butylphenyl)-3a,4,5,9b-tetrahydro-3H-cyclopenta[c]quinoline-8-sulfonamide;

4-(2-naphthyl)-3a,4,5,9b-tetrahydro-3H-cyclopenta[c]quinoline-8-sulfonamide;

30

4-(4-fluorophenyl)-3a,4,5,9b-tetrahydro-3H-cyclopenta[c]quinoline-8-sulfonamide;

8-methyl-4-(4-methylphenyl)-2,3,3a,4,5,9b-hexahydro-furo[3,2-c]quinoline;

(3aR,4S,9bS)-8-methyl-4-naphthalen-2-yl-3a,4,5,9b-tetrahydro-3H-cyclopenta[c]quinoline;

(3aS,4R,9bR)-8-methyl-4-naphthalen-2-yl-3a,4,5,9b-tetrahydro-3H-cyclopenta[c]quinoline;

- 28 -

(3aR,4S,9bS)-4-(4-methylphenyl)-3a,4,5,9b-tetrahydro-3H-cyclopenta[c]quinoline-8-sulfonamide;

(3aS,4R,9bR)-8-methyl-4-(4-methylphenyl)-3a,4,5,9b-tetrahydro-3H-cyclopenta[c]quinoline-8-sulfonamide;

5 (3aS,4S,9bR)-4-(4-methylphenyl)-3a,4,5,9b-tetrahydro-3H-cyclopenta[c]quinoline-8-sulfonamide;

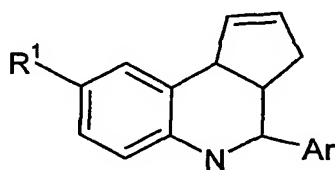
(3aR,4R,9bS)-4-(4-methylphenyl)-3a,4,5,9b-tetrahydro-3H-cyclopenta[c]quinoline-8-sulfonamide;

(3aR,4S,9bS)-4-(4-methylphenyl)-1,2,3a,4,5,9b-hexahydro-3H-cyclopenta[c]quinoline-8-sulfonamide or

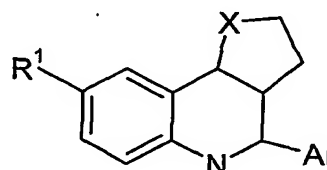
10 (3aS,4R,9bR)-4-(4-methylphenyl)-1,2,3a,4,5,9b-hexahydro-3H-cyclopenta[c]quinoline-8-sulfonamide

or a pharmaceutically-acceptable salt thereof.

15 10. A method of making a compound according to Formula I or Formula II



I



II

wherein:

20 R^1 is $NR^2-SO_2-R^2$ or $-SO_2-N(R^2)_2$ where R^2 at each occurrence is independently selected from hydrogen, C_{1-4} alkyl, halogenated C_{1-4} alkyl, aryl or heteroaryl where any alkyl, halogenated-alkyl, aryl or heteroaryl moiety is substituted with 0, 1, 2 or 3 R^3 moieties;

X is O, S or CH_2 ;

Ar is a moiety selected from furyl, pyridyl, thienyl, phenyl or naphthyl, said moiety having 0, 1, 2, 3 or more R^3 substituents where R^3 is at each occurrence independently
25 selected from hydrogen, halogen, C_{1-4} alkyl, C_{2-4} alkenyl, C_{2-4} alkynyl, OC_{1-4} alkyl, NH_2 , CO_2H , CO_2C_{1-4} alkyl, CN, NO_2 , and CF_3 ;

comprising:

adding indium chloride to a solution of an arylaldehyde, a 4-aminobenzenesulfonamide, and cyclopentadiene in acetonitrile and stirring overnight;

30 neutralizing, extracting, concentrating and purifying to afford a quinoline.